

few fibres. So it is in *Carinina* (Pl. II. figs. 3, 6, 7, 9, 10 ; Pl. IV. fig. 6, *Ps*). In *Eupolia* the proboscis is longer, but the sheath is still most insignificant, as may be gathered from the figures (Pl. VI. figs. 9, 10 ; Pl. VII. fig. 10). It is a space having internally a cellular coating very similar to that of the blood-spaces, the cells of this internal epithelial covering often more or less projecting into the lumen of the sheath. Outside of these cells a few circular fibres are seen to have developed ; outside of these there is again the body-parenchyma, with the enclosed blood-lacunæ. There is no doubt that from sections of *Eupolia* alone nobody would be inclined to look upon the cavity of the proboscidian sheath as a very independent cavity, nor is it possible to affirm that the mode of the protrusion of the proboscis, as it was sketched above, is indeed fully developed in *Eupolia* and *Carinella*. There is no doubt that of all Nemertea observed alive, these two were never seen to protrude their proboscis spontaneously, and very often even preserved them in death, when the Hoplonemertea always forcibly expel and even spontaneously detach their proboscis.

There is, on the other hand, no evidence at all which would justify us in regarding the arrangement of these Palæonemertea as secondary or degenerated from a higher differentiated stage. The participation of the body musculature in bringing about the movements of the proboscis in these lower forms renders this more intelligible. Only in the more highly differentiated Schizonemertea, and especially in the Hoplonemertea, the muscular walls of the proboscidian sheath undergo a very rapid increase in bulk, and at the same time become more and more, and in the last-named group even wholly independent of the body musculature. This increase of an organ so eminently mesoblastic as the proboscidian sheath, by gradual addition of new fibres that are even arranged in multiple layers, can thus be traced in all its various stages in the different genera of Nemertea. Salensky would probably not have made his startling hypothesis above alluded to,¹ based on ontogenetical observations of a scission in the proboscidian wall, by which (1) a muscular proboscidian sheath surrounding the proboscis becomes separated from, and independent of, the musculature of the proboscis itself, and (2) an isolated cœlome—the proboscidian cavity—is originated, if he had been as well acquainted with the comparative anatomy of the animals about which he writes as he is with certain details of their ontogeny.

Granting even that the development may, in the species observed by him, follow the paths he has sketched (my own observations on the ontogeny of *Lineus obscurus* (XIV) have led to wholly different results on this head), it is not yet permissible to base upon those two ontogenetic observations phylogenetic speculations wholly at variance with all the facts that are furnished by a comparison of the different living genera. The woodcuts given by Salensky, in which a Rhabdocœle proboscis and a Nemertean one are put side by side, look very tempting, but cannot be accepted by me.

¹ *Archives de Biologie*, vol. v. p. 561 ; *Zeitschr. f. wiss. Zool.*, Bd. xliii. p. 508.